REMARKS

Favorable reconsideration of this application is respectfully requested.

Claims 1, 4, 5, 14-21, 23, 24, 28-31, 33-35, 40, 41, 45, 46, 49-52, 54, 57-70, 73, 77, 79, 80, 83, and 85-87 are pending in this application. Claims 32, 42, 44, 55, 56, 71, 72, 74-76, 78, 81, 82, and 84 are canceled by the present response without prejudice. New claims 86 and 87 are added by the present response.

Claims 14, 15, 23, 46, 50, 58, 73, 74, and 85 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. patent 6,163,365 to Takahashi. Claims 16-18, 19-21, 29, 30-33, 44, 45, 51, 52, 56, 57, 62, 63, 66, 67, 77, 78, 83, and 84 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. patent 5,721,608 to Taniguchi. Claims 1, 4-5, 24, 34, 35, 40-42, 49, 54, 55, 59, 60, 61, 69, 70, 72, and 79-82 were rejected under 35 U.S.C. § 103(a) as unpatentable over Takahashi. Claims 28, 64, 65, 68, 71, 75, and 76 were objected to as dependent upon rejected base claims, but were noted as allowable if rewritten in independent form to include all of the limitations of their base claims and any intervening claims.

Initially, applicants gratefully acknowledge the indication of the allowable subject matter in claims 28, 64, 65, 68, 71, 75, and 76.

Addressing now each of the above-noted rejections based on Takahashi and Taniguchi, those rejections are traversed by the present response.

Applicants note the claims are amended by the present response to clarify features, which claim changes are deemed to be self-evident from the original disclosure and thus not raise any issues of new matter.

With respect to independent claim 1, amended independent claim 1 now more clearly recites an operation of "setting a time interval of obtaining both of a detection result of a part of said exposure light between said light source and said mask and a detection result of said exposure light having passed through said optical system", and further such that "said time

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interval is changed when the setting of said exposure condition is changed". Such features are believed to clearly distinguish over both Takahashi and Taniguchi.

Takahashi describes a structure in which when the apparatus is under operation, the value of transmissivity in the system including the imaging lens (condenser lens) 7 and the projection optical system 8 is predicted, in accordance with the integrated light quantity per unit time as monitored through a detector 10 and with values of the aperture area of a masking blade 6 and the transmissivity of a reticle R. Further, in Takahashi if the apparatus is left without light irradiation, the transmissivity of the system is predicted from the transmissivity just before the apparatus is left and from the time in which the apparatus has been left. Further, in Takahashi if during non-operation the value of transmissivity of the system becomes lower than a threshold, the light is projected to the system, until the transmissivity of the system increases to the threshold.

In such ways, Takahashi does not describe or suggest the above-noted operation of "setting a time interval for obtaining both of a detection result of a part of an exposure light between a light source and a mask and a detection result of the exposure light having passed through an optical system" and such that "said time interval is changed when the setting of an exposure condition is changed", as recited in amended independent claim 1.

Further, with respect to Taniguchi, Taniguchi describes a structure in which incident energy of an illumination light incident to a projection optical system from a reticle side is obtained in accordance with a relative position of a reticle and a slit-like illumination area, and imaging characteristics of the projection optical system are corrected based on the incident energy that varies depending on the relative position of the reticle and the slit-like illumination area. In this structure, to obtain a reticle transmittance η for each scanning position of the reticle, the magnitude of an output Sc1 from a radiation amount sensor 41 is sequentially read in correspondence with a coordinate position of a reticle interferometer, and

the magnitude of an output Sa of a photoelectric sensor 28 is read, and then a ratio Sc1/Sa is

calculated and stored in a memory. Further, Taniguchi describes a structure in which

information about the variation characteristic of an imaging characteristic is replaced every

time the illumination condition is changed upon replacement of an aperture stop 29.

However, in such ways Taniguchi also fails to teach or suggest "setting a time interval

for obtaining both of a detection result of a part of said exposure light between said light

source and said mask and a detection result of said exposure light having passed through said

optical system" and further such that "said time interval is changed when the setting of said

exposure condition is changed", as recited in independent claim 1.

In such ways, applicants respectfully submit that amended independent claim 1, and

the claims dependent therefrom, patentably distinguish over the applied art to Takahashi and

Taniguchi.

With respect to independent claim 14, amended independent claim 14 recites "setting

time intervals each corresponding to at least two exposure conditions for transferring said

pattern of said mask onto said substrate, said time intervals being for obtaining both detection

results of a part of said exposure light between said light source and said mask and of said

exposure light having passed through said optical system", "storing said set time intervals in

a memory", "calling up said time interval corresponding to the set one exposure condition

from the memory", and "obtaining both detection results of a part of the exposure light

between the optical source and the mask and of the exposure light having passed through the

optical system". Such features are also believed to distinguish over Takahashi and

Taniguchi.

With respect to independent claims 16 and 29, amended independent claim 16 recites

an operation of "comparing a transmittance of said optical system obtained based on a ratio

between the amount of a part of said exposure light and the amount of said exposure light

having passed through said optical system measured in said first measurement and a transmittance of said optical system obtained based on a ratio between the amount of a part of said exposure light and the amount of said exposure light having passed through said optical system measured in said second measurement". Amended independent claim 16 also recites "obtaining a time interval for measurement for measuring both of an amount of a part of said exposure light between said light source and said mask and an amount of said exposure light having passed through said optical system in third and succeeding measurements, in accordance with the comparison result". Amended independent claim 29 recites similar limitations. Such features are believed to also clearly distinguish over Takahashi in view of Taniguchi.

With respect to independent claims 19 and 45, amended independent claim 19 recites an operation of "monitoring an amount of said exposure light irradiated on said optical system between said light source and said mask, while performing said self-cleaning", and "setting said exposure amount control target value based on said determined transmittance time-varying prediction function"; amended independent claim 45 recites similar limitations. Such features are also believed to clearly distinguish over Takahashi and Taniguchi.

With respect to independent claim 24, amended independent claim 24 recites setting "a time interval for obtaining both of an output from said first sensor and an output from said second sensor based on an exposure condition for transferring said pattern onto said substrate", and further that "said control unit changes said time interval when said exposure condition is changed". Such features are also believed to clearly distinguish over Takahashi and Taniguchi.

Amended independent claim 46 recites a structure of "a setting unit connected with said first and second sensors and configured to set time intervals each corresponding to a plurality of conditions for transferring said pattern onto said substrate, said time intervals

being for obtaining both of an output signal from said first sensor and an output signal from said second sensor". Amended independent claim 46 also recites "a memory connected with said setting unit and configured to store said set time intervals so that said set time intervals respectively correspond to said plurality of conditions" and "a control unit connected with said memory and said selection unit and configured to call up a time interval corresponding to said any exposure conditions selected by said selection unit from the memory". Such features as positively recited in claim 46 are also believed to clearly distinguish over Takahashi and Taniguchi.

In such ways, applicants respectfully submit that each of amended independent claims 1, 14, 16, 19, 24, 29, 45, and 46, and the claims dependent therefrom, patentably distinguish over the applied art to Takahashi and Taniguchi.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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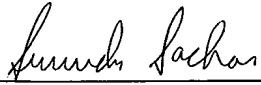
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